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                  Substances (PICCS) has been added to CHEMLIST
 NEWS  3  Oct 27  New Extraction Code PAX now available in Derwent
                  Files
 NEWS  4  Oct 27  SET ABBREVIATIONS and SET PLURALS extended in
                  Derwent World Patents Index files
 NEWS  5  Oct 27  Patent Assignee Code Dictionary now available
                  in Derwent Patent Files
 NEWS  6  Oct 27  Plasdoc Key Serials Dictionary and Echoing added to
                  Derwent Subscriber Files WPIDS and WPIX
 NEWS  7  Nov 29  Derwent announces further increase in updates for DWPI
 NEWS  8  Dec  5  French Multi-Disciplinary Database PASCAL Now on STN
 NEWS  9  Dec  5  Trademarks on STN - New DEMAS and EUMAS Files
 NEWS 10  Dec 15  2001 STN Pricing
 NEWS 11  Dec 17  Merged CEABA-VTB for chemical engineering and
                  biotechnology
 NEWS 12  Dec 17  Corrosion Abstracts on STN
 NEWS 13  Dec 17  SYNTHLINE from Prous Science now available on STN
 NEWS 14  Dec 17  The CA Lexicon available in the CAPLUS and CA files
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L1 0 ASPIRAT? AND MIX? AND DNA AND SHEAR

=> s aspirat? and dna and shear

L2 0 ASPIRAT? AND DNA AND SHEAR

=> s aspirat? and nucleic and shear

L3 0 ASPIRAT? AND NUCLEIC AND SHEAR

=> s mix? and dna and shear

L4 50 MIX? AND DNA AND SHEAR

=> dup rem l4

PROCESSING COMPLETED FOR L4
L5 32 DUP REM L4 (18 DUPLICATES REMOVED)

=> d l5 bib ab 1-10

L5 ANSWER 1 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 2000:861852 CAPLUS
DN 134:27279
TI Isolation of high molecular weight **DNA** from natural samples without characterization or culture of member organisms
IN McNeil, Ian; Lynch, Berkley A.; Loiacono, Kara A.; Tiong, Choi Lai; Minor, Charles A.; Osburne, Marcia S.; Grossman, Trudy H.; August, Paul R.
PA Aventis Pharmaceuticals, Inc., USA
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000073508	A1	20001207	WO 2000-US15306	20000601

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI US 1999-137065 19990602
US 2000-191601 20000323
AB Methods and compns. are disclosed for isolation and propagation of high mol. wt. **DNA**. Large segments of **DNA** isolated from samples obtained directly from natural sources such as soil, undersea core samples, fresh and salt water, air, and other sources may be used to examine entire gene clusters and to isolate expression products of previously unknown and uncharacterized or even extinct organisms. Isolation and manipulation of larger **DNA** segments than has been previously possible is taught herein. The method uses simple and direct processing of samples with the min. of reagents and **shear** -generating manipulations. Soil 50 mL was suspended in Tris (pH 8.0) 25 mM, NaCl 150 mM, EDTA 25 mM to a final vol. of 175 mL and emulsified with

phenol 50 mL by gentle [redacted]xing at room temp. for 30 min. [redacted]The aq. phase was recovered by [redacted]ntrifugation and **DNA** pptd. wit[redacted] isopropanol 0.7 vol. The **DNA** was fractionated on a sucrose d. gradient and samples with a size range of 50-400 kilobases were obtained with a yield of .apprx.1 .mu.g/g soil. Anal. of 16S rRNAs in the sample identified a large no. of bacterial families distinct from known bacteria. Identification of a gene cluster synthesizing a novel antibiotic active against Bacillus subtilis is demonstrated.

RE.CNT 1
RE
(1) Smith; US 5795752 A 1998 CAPLUS

L5 ANSWER 2 OF 32 CAPLUS COPYRIGHT 2001 ACS DUPLICATE 1
AN 2000:483356 CAPLUS
DN 133:262934
TI Structural properties of the sliding columnar phase in layered liquid crystalline systems
AU Golubovic, L.; Lubensky, T. C.; O'Hern, C. S.
CS Department of Physics, Harvard University, Cambridge, MA, 02138, USA
SO Phys. Rev. E: Stat. Phys., Plasmas, Fluids, Relat. Interdiscip. Top. (2000), 62(1-B), 1069-1094
CODEN: PLEEE8; ISSN: 1063-651X
PB American Physical Society
DT Journal
LA English
AB Under appropriate conditions, **mixts**. of cationic and neutral lipids and **DNA** in water condense into complexes in which **DNA** strands form local two-dimensional (2D) smectic lattices intercalated between lipid bilayer membranes in a lamellar stack. These lamellar **DNA**-cationic-lipid complexes can in principle exhibit a variety of equil. phases, including a columnar phase in which parallel **DNA** strands form a 2D lattice, a nematic lamellar phase in which **DNA** strands align along a common direction but exhibit no long-range positional order, and a possible new intermediate phase, the sliding columnar (SC) phase, characterized by a vanishing **shear** modulus for relative displacement of **DNA** lattices but a nonvanishing modulus for compressing these lattices. We develop a model capable of describing all phases and transitions among them and use it to calc. structural properties of the sliding columnar phase. We calc. displacement and d. correlation functions and x-ray scattering intensities in this phase and show, in particular, that d. correlations within a layer have an unusual exp(-const.times.ln2r) dependence on sepn. r. We investigate the stability of the SC phase with respect to **shear** couplings leading to the columnar phase and dislocation unbinding leading to the lamellar nematic phase. For models with interactions only between nearest neighbor planes, we conclude that the SC phase is not thermodynamically stable. Correlation functions in the nematic lamellar phase, however, exhibit SC behavior over a range of length scales.

RE.CNT 31
RE
(2) Artzner, F; Phys Rev Lett 1998, V81, P5015 CAPLUS
(3) Bloomfield, V; Biopolymers 1991, V31, P1471 CAPLUS
(4) Brand, H; Phys Rev A 1981, V24, P2777 CAPLUS
(6) Chandrasekhar, S; Pramana 1977, V9, P471 CAPLUS
(7) Chandrasekhar, S; Rep Prog Phys 1990, V53, P57 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 2000:499005 CAPLUS
DN 133:234199
TI Structural properties of the sliding columnar phase in layered liquid crystalline systems
AU Golubovic, L.; Lubensky, T. C.; O'Hern, C. S.
CS Dep. of Physics, Harvard Univ., Cambridge, MA, 02138, USA
SO Los Alamos Natl. Lab., Prepr. Arch., Condens. Matter (2000) 1-28, arXiv:cond-mat/0003128, 31 Mar 2000
CODEN: LNCMFR
URL: http://xxx.lanl.gov/pdf/cond-mat/0003128
PB Los Alamos National Laboratory

DT Journal; (preprint)
LA English
AB Under appropriate conditions, **mixts**. of cationic and neutral lipids and **DNA** in water condense into complexes in which **DNA** strands form local 2D smectic lattices intercalated between lipid bilayer membranes in a lamellar stack. These lamellar **DNA** -cationic-lipid complexes can in principle exhibit a variety of equil. phases, including a columnar phase in which parallel **DNA** strands from a 2D lattice, a nematic lamellar phase in which **DNA** strands align along a common direction but exhibit no long-range positional order, and a possible new intermediate phase, the sliding columnar (SC) phase, characterized by a vanishing **shear** modulus for relative displacement of **DNA** lattices but a nonvanishing modulus for compressing these lattices. We develop a model capable of describing all phases and transitions among them and use it to calc. structural properties of the sliding columnar phase. We calc. displacement and d. correlation functions and x-ray scattering intensities in this phase and show, in particular, that d. correlations within a layer have an unusual exp(-const. ln2r) dependence on sepn. r. We investigate the stability of the SC phase with respect to **shear** couplings leading to the columnar phase and dislocation unbinding leading to the lamellar nematic phase. For models with interactions only between nearest neighbor planes, we conclude that the SC phase is not thermodynamically stable. Correlation functions in the nematic lamellar phase, however, exhibit SC behavior over a range of length scales.
RE.CNT 33
RE
(3) Artzner, F; Phys Rev Lett 1998, V81, P5015 CAPLUS
(4) Bloomfield, V; Biopolymers 1991, V31, P1471 CAPLUS
(5) Brand, H; Phys Rev A 1981, V24, P2777 CAPLUS
(7) Chandrasekhar, S; Pramana 1977, V9, P471 CAPLUS
(8) Chandrasekhar, S; Rep Prog Phys 1990, V53, P57 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1999:819095 CAPLUS
DN 132:47215
TI Microbiological cell lysis
IN Brooks, Robert Cecil
PA Aea Technology Plc, UK
SO Eur. Pat. Appl., 8 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 967269	A1	19991229	EP 1999-304254	19990601
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	GB 2338236	A1	19991215	GB 1998-12713	19980613
PRAI	GB 1998-12713		19980613		

AB Cell lysis may be brought about by contacting a suspension of cells with a lysis reagent such as NaOH soln.; subsequent treatment enables org. mols. such as plasmid **DNA** to be sepd. from other cell components. Intimate **mixing** of the cell suspension with lysis reagent is achieved by passage through a fluidic vortex **mixer** arranged so the residence time of the cell suspension in the **mixer** is less than the time for lysis to be completed, and may be less than 0.1 s. Such a vortex **mixer** comprises a cylindrical chamber with an axial outlet duct and at least one tangential inlet duct, but with no internal baffles. The low **shear** stress to which the cell suspension is subjected minimizes loss of product through denaturation or fragmentation of the product, and indeed of contaminants. The subsequent treatment may also utilize a fluidic vortex **mixer**.
RE.CNT 11
RE
(1) Becton Dickinson Co; EP 0626456 A 1994 CAPLUS
(3) Ciba Geigy AG; EP 0341215 A 1989 CAPLUS

(4) Debonville, D; US 50473 A 1991 CAPLUS
(5) Hitzeman, R; US 4775622 1988 CAPLUS
(6) Phillips Petroleum Co; EP 0271667 A 1988 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 32 SCISEARCH COPYRIGHT 2001 ISI (R)
AN 1999:411250 SCISEARCH
GA The Genuine Article (R) Number: 198UD
TI Flow light scattering studies of polymer coil conformation in solutions in extensional flow
AU Lee E C; Muller S J (Reprint)
CS UNIV CALIF BERKELEY, DEPT CHEM ENGN, BERKELEY, CA 94720 (Reprint); UNIV CALIF BERKELEY, DEPT CHEM ENGN, BERKELEY, CA 94720; UNIV CALIF BERKELEY, LAWRENCE BERKELEY LAB, CTR ADV MAT, BERKELEY, CA 94720
CYA USA
SO MACROMOLECULES, (18 MAY 1999) Vol. 32, No. 10, pp. 3295-3305.
Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036.
ISSN: 0024-9297.
DT Article; Journal
FS PHYS
LA English
REC Reference Count: 47
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB The dynamics of isolated polymer chains in dilute solution under steady, extensional flow were investigated by means of flow light scattering. Both the orientation and deformation of the chains during flow were determined by analyzing the angular dependence of the scattered light intensity. The extensional flow field was imparted on the polymeric: fluids by a stagnation point flow in the center of a four-roll mill apparatus. The fluids studied were nearly monodisperse high molecular weight polystyrenes (HMPS) of various molecular weights dissolved in either the viscous solvent dioctyl phthalate (DOP) or a **mixed** solvent of low molecular weight polystyrene (LMPS) and dioctyl phthalate. The flow field in a Newtonian fluid of seeded glycerin was also examined by flow dynamic light scattering techniques and flow visualization to confirm the extensional flow field. Flow dynamic Light scattering and flow visualization results verified that the field generated by the four-roll mill was a reasonable approximation of planar extensional flow, under the conditions investigated. Flow (static) light scattering results confirmed that the polymer chains aligned completely with the stretch direction, as expected for this type of flow. The deformation of the chains, however, was significantly less than predicted by elastic dumbbell models. Also studied were the effects of molecular weight and solvent quality on the deformation of the polymer chains. Comparisons are drawn between polystyrene chains in the strong extensional flow field studied here and a steady shearing flow examined in a previous publication as well as with other studies in extensional flows.

L5 ANSWER 6 OF 32 CAPLUS COPYRIGHT 2001 ACS DUPLICATE 2
AN 1999:440657 CAPLUS
DN 131:194923
TI The effects of material properties and fluid flow intensity on plasmid **DNA** recovery during cell lysis
AU Levy, M. S.; Ciccolini, L. A. S.; Yim, S. S. S.; Tsai, J. T.; Titchener-Hooker, N.; Ayazi Shamlou, P.; Dunnill, P.
CS The Advanced Centre for Biochemical Engineering, Department of Biochemical Engineering, University College London, London, WC1E 7JE, UK
SO Chem. Eng. Sci. (1999), 54(15-16), 3171-3178
CODEN: CESCAC; ISSN: 0009-2509
PB Elsevier Science Ltd.
DT Journal
LA English
AB The disruption of recombinant E. coli cells contg. a 76.8 kb plasmid **DNA** was achieved by the chem. lysis method in a coaxial cylinder rheometer which allowed in situ measurements of rheol. changes to be carried out as the lysis reaction proceeded. For the cases studied the cell lysis time was found to be approx. 30 s. Moreover, the release of intracellular material produced a **mixt.** with **shear** thinning flow properties, the extent of non-Newtonian flow was found to

depend on the **shear** rate used during the cell lysis operation. On neutralization, the lysate produced a highly flocculated and **shear** sensitive gel which floated on the top of the liquor contg. the plasmid **DNA**. Small amplitude oscillatory data were obtained showing the viscoelastic properties of the gel matrix. Exptl. data were also obtained on the **shear** sensitivity of the plasmid **DNA** recovered using a purpose-built rotating disk **shear** device. **Shear** rates of the order of 106s-1 were generated in the device and were confirmed by CFD anal. of the prevailing flow field. Tests carried out with 20 and 29 kb plasmid **DNA** showed that both plasmids were susceptible to **shear** damage. The extent of **shear** damage increased with plasmid size and as the ionic strength of soln. decreased.

RE.CNT 16
RE
(1) Birnboim, H; Nucleic Acids Res 1979, V7, P1513 CAPLUS
(2) Carlson, A; Biotechnol Bioengng 1995, V48, P303 CAPLUS
(4) Crystal, R; Science 1995, V270, P404 CAPLUS
(5) Davies, J; Chem Engng Sci 1987, V42, P1671 CAPLUS
(7) Ledley, F; Pharmaceutical Res 1996, V13, P1595 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 32 CAPLUS COPYRIGHT 2001 ACS DUPLICATE 3
AN 1998:119967 CAPLUS
DN 128:253476
TI Automated fluid **mixing** in glass capillaries
AU Evensen, H. T.; Meldrum, D. R.; Cunningham, D. L.
CS Department of Electrical Engineering, University of Washington, Seattle, WA, 98195-2500, USA
SO Rev. Sci. Instrum. (1998), 69(2, Pt. 1), 519-526
CODEN: RSINAK; ISSN: 0034-6748
PB American Institute of Physics
DT Journal
LA English
AB A fast method and compact device for **mixing** sub-microliter fluid samples contained in glass capillaries is presented. The fluid is rapidly moved back and forth by air vol. displacement driven by a piezo-ceramic actuator. Rapid **mixing** of different fluids is achieved via diffusion between the main fluid vol. in the capillary and the thin fluid film it deposits on the capillary wall through its motion. Bubbles in the fluid are processed out of the capillary by use of an asym. velocity profile. A simple anal. model is used to optimize the design of the device and to elucidate the mechanisms involved in **mixing**. The **mixing** time is found to be inversely proportional to the fraction of the fluid vol. that is left in the film layer for each cycle, which is detd. by the wetting properties and the viscosity. The **mixing** time is therefore controlled by the dead-air vol. of the system, the fluid vol., the capillary size, and the displacement limits of the piezo-ceramic actuator, in addn. to the intrinsic properties of the fluid being **mixed**. The device described can **mix** two 1 .mu.l water solns. in under 3 s. The possible **shear** breakage of **DNA** in soln. is investigated, and .lambda.-**DNA** is found to remain intact at aggressive **mixing** parameters. No evidence of aerosol contamination in polymerase chain reaction reactions was found to date.

L5 ANSWER 8 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1997:181212 CAPLUS
DN 126:259697
TI Enhanced **DNA** extraction and PCR amplification of mitochondrial genes from formalin-fixed museum specimens
AU Shedlock, Andrew M.; Haygood, Margo G.; Pietsch, Theodore W.; Bentzen, Paul
CS University of Washington, Seattle, WA, USA
SO BioTechniques (1997), 22(3), 394-400
CODEN: BTNQDO; ISSN: 0736-6205
PB Eaton
DT Journal
LA English
AB The authors describe a method of **DNA** extn. and PCR amplification

of relatively large target fragments from formalin-fixed fluid-preserved tissues. To flush exc[redacted] formalin from the system, tis[redacted]s of museum specimens were successively incubated in large vols. of glycine-contg. buffer before protease digestion. During phenol/chloroform **DNA** extn. following protease digestion of samples, vortex **mixing** and disturbances that can **shear DNA** were avoided. Mitochondrial gene fragments 570 and/or 470 bp long were successfully amplified in 28 out of 34 total PCR reactions conducted on 12 different museum specimens of variable condition and age.

L5 ANSWER 9 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 4
AN 1997:510053 BIOSIS
DN PREV199799809256
TI Macrodipoles unusual electric properties of biological macromolecules.
AU Porschke, Dietmar
CS Max-Planck-Inst. Biophysikalische Chem., D-37077 Goettingen Germany
SO Biophysical Chemistry, (1997) Vol. 66, No. 2-3, pp. 241-257.
ISSN: 0301-4622.
DT General Review
LA English
AB The wide range of different effects induced by electric fields in biological macromolecules is clearly due to the unusual quality and quantity of their electric parameters. A general concept for a quantitative description of the polarizability of macromolecules remains to be established. In the case of **DNA**, experimental data indicate the existence of an effective polarization length N-p; at chain lengths N lt N-p the polarizability increases with N-2, whereas saturation is approached at N gtoreq Np. The polarization length decreases with increasing ionic strength in close analogy to the Debye length, but is apprx 10 times larger than the Debye length. The dynamics of **DNA** polarization at high field strengths has been observed in the ns time range and is consistent with biased field induced ion dissociation. In the range of chain lengths from apprx 400 to apprx 850 base pairs **DNA** molecules exhibit permanent dipole moments, which are in a preferentially perpendicular direction to the end-to-end-vector, leading to a positive electric dichroism. These results are consistent with a "frozen" ensemble of bent **DNA** configurations and provide evidence for the existence of slow, non-elastic bending transitions. The electric parameters of proteins are usually dominated by a permanent anisotropy of the charge distribution, corresponding to permanent dipole moments of the order of several hundred Debye up to about 1500 Debye. Relatively small dipole moments of protein monomers add up to millions of Debye, when these proteins are in a vectorial organization in membrane patches, as found for bacteriorhodopsin and Na+/K+-ATPase. In these cases the dipole vector may support vectorial ion transport. It is remarkable that the dipole moments of proteins usually show a relatively small dependence on the salt concentration; a rational for these observations is provided by a dipole potential at the plane of **shear** for rotational diffusion, which is defined in close analogy to the zeta-potential for translational diffusion. Symmetry breaking leading to huge electric dipole moments may be expected for **mixed** lipid vesicles: according to model calculations the phase separation of lipid components with and without net charges may lead to very high dipole moments; the expectation has been verified experimentally for vesicles containing DMPA and DMPC. The state of these systems should be extremely sensitive to electric fields. In summary, there is an unusual wide variation of electric parameters associated with biological macromolecules and with biomolecular assemblies, which is the basis for the complexity of different phenomena induced by electric fields in biological systems.

L5 ANSWER 10 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1997:230158 CAPLUS
TI Primary recovery by filtration of a plasmid-based gene from E. coli
AU Theodossiou, I.; Collins, I. J.; Ward, J. M.; Thomas, O. R. T.; Dunnill, P.
CS Advanced Centre Biochemical Engineering, University College London, London, WCIE 7JE, UK
SO Book of Abstracts, 213th ACS National Meeting, San Francisco, April 13-17 (1997), BIOC-092 Publisher: American Chemical Society, Washington, D. C.

CODEN: 64AOAA
DT Conference; Meeting Abstract
LA English
AB We describe the use of filtration as the primary sepn. step suitable for the large scale recovery of plasmid **DNA** from alkalinelysis **mixts**., The effects of pore size, material and construction of various filter membranes on the purity and yield of plasmid **DNA** are investigated and the impact of extrusion of solids and **shear** of chromosomal and plasmid **DNA** upon the purifn. process is defined. Filtration through the smallest pore size membrane proceeded at an av. rate of .apprxeq.23 cm h-1 but gave the best combinafion of pasmid purity (46%) and yield (67%), together with low filtrate solids (.apprxeq. 0.5%) and protein (.apprxeq. 3%) contents. The filtration performance of this membrane was further modified by precoatIng with various diatomaceous earths. Filtration through the finest grade of filter aid tested (0.07 darcies) gave an overall plasmid **DNA** purity of 65%, complete solids removal, and a filtrate contg. <1% of the original protein content. But the filtration rate and plasmid **DNA** recoveries were markedly reduced (8.2 cm h-1 and 30% respecfively) and some adsorption to the diatomaceous earth (<6%) was also noted.

=> d 15 bib ab 11-20

L5 ANSWER 11 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 5
AN 1996:570440 BIOSIS
DN PREV199799285121
TI Flowable networks as **DNA** sequencing media in capillary columns.
AU Menchen, Steve (1); Johnson, Ben; Winnik, Mitchell A.; Xu, Bai
CS (1) Perkin Elmer Corp., Applied Biosystems Div., 850 Lincoln Center Drive, Foster City, CA 94404 USA
SO Electrophoresis, (1996) Vol. 17, No. 9, pp. 1451-1459.
ISSN: 0173-0835.
DT Article
LA English
AB A novel class of materials that self-assemble in water into equilibrium network structures with a well-defined mesh size consist of polyethylene glycols (PEG's) end-capped with micelle-forming fluorocarbon tails. These micellar systems form flowable aqueous gel-like networks that permit electrophoretic **DNA** sequencing in capillary columns. The gels have unusual rheological properties, including network breakdown under **shear**, resulting in plug now that allows columns refill with complete ejection of byproducts of the previous sequencing analysis. In this system, **DNA** fragment electrophoretic mobilities are unaffected by the hydrophobicity of the polymer tails. Low molecular weight (M) PEG chains (M 8000) show catastrophic resolution loss for **DNA** fragments larger than 100 bases due to band broadening. For a longer PEG segment (M 35000) separating the end groups, band broadening occurs for **DNA** fragments larger than 300 bases, implying that the PEG segment length controls the mesh size in the equilibrium network structure. Optimum sequencing results were obtained from a 6% solution of a 1:1 **mixture** of C-6F-13 end-capped- and C-8F-17 end-capped PEG 35000. The resolution limit of fluorescent-dye-labeled sequencing products in this formulation was 450 bases in 75 mu-m capillaries at 200 V/cm.

L5 ANSWER 12 OF 32 SCISEARCH COPYRIGHT 2001 ISI (R)
AN 96:129598 SCISEARCH
GA The Genuine Article (R) Number: TU020
TI NONLINEAR-ANALYSIS OF STRIPE TEXTURES IN HEXAGONAL LYOTROPIC MESOPHASES
AU OSWALD P (Reprint); GEMINARD J C; LEJCEK L; SALLEN L
CS ECOLE NORMALE SUPER LYON, PHYS LAB, 46 ALLEE ITALIE, F-69364 LYON, FRANCE (Reprint); ACAD SCI CZECH REPUBL, INST PHYS, CR-18040 PRAGUE 8, CZECH REPUBLIC
CYA FRANCE; CZECH REPUBLIC
SO JOURNAL DE PHYSIQUE II, (FEB 1996) Vol. 6, No. 2, pp. 281-303.
ISSN: 1155-4312.
DT Article; Journal
FS PHYS

LA ENGLISH
REC Reference Count: 24
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Fan-shaped textures of hexagonal mesophases of lyotropic systems are often striated. These striations are due to a thermomechanical undulation of the columns. We measure their wavelength and amplitude in the lyotropic **mixture** C(12)EO(6)+water. By comparing these measurements to the theoretical predictions in the strongly nonlinear regime (our model is a generalization of the model of Singer [17] to columnar phases), we find that the penetration length lambda = root K/B is of the order of 40 Angstrom (where B is the compressibility modulus of the hexagonal array and K the curvature modulus of the columns). This value is in qualitative agreement with that found by using X-rays [11] or the grain-boundary method [10]. In addition, we find that the **shear** elastic modulus mu of the hexagonal array is 5 to 10 times smaller than B, in agreement with X-ray experiments [16].

L5 ANSWER 13 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1996:217324 CAPLUS
TI Flow cytometric analysis of heterogeneous solanum aviculare plant cell suspensions.
AU Yanpaisan, Wandee; King, Nicholas J. C.; Doran, Pauline M.
CS Department Biotechnology, University New South Wales, Sydney, 2052, Australia
SO Book of Abstracts, 211th ACS National Meeting, New Orleans, LA, March 24-28 (1996), BIOT-167 Publisher: American Chemical Society, Washington, D. C.
CODEN: 62PIAJ
DT Conference; Meeting Abstract
LA English
AB Development of large-scale bioprocesses for plant cells requires detailed information about the growth characteristics of the culture. Because plant suspensions contain a **mixt**. of cell types with varying growth and prodn. characteristics, usual procedures for measuring population-av. properties cannot reveal the actual behavior of the culture. Flow cytometry is a very powerful technique for examg. plant suspensions as it allows measurement of cell parameters on a cell-by-cell basis. In this work, we report results from flow cytometric anal. of Solanum aviculare cultures. The measurements were performed on nuclei isolated by mech. chopping of the cells. **DNA** staining with propidium iodide and multi-parametric measurement of BrdU (bromodeoxyuridine) incorporation were used to investigate cell-cycle kinetics and to identify sub-populations of cells with different growth activity. The effect of hydrodynamic **shear** on **DNA** distributions was also detd., and showed the sensitivity of cell-cycle phase in plant cells to culture conditions.

L5 ANSWER 14 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1995:911624 CAPLUS
DN 124:4339
TI Protection of megabase **DNA** from shearing
AU Kovacic, Roger T.; Comai, Luca; Bendich, Arnold J.
CS Dep. Botany, Univ. Washington, Seattle, WA, 98195, USA
SO Nucleic Acids Res. (1995), 23(19), 3999-4000
CODEN: NARHAD; ISSN: 0305-1048
DT Journal
LA English
AB **DNA** from Saccharomyces cerevisiae, Schizosaccharomyces pombe, and pea seedlings can be extd. and manipulated in liq. medium without severe shearing. The authors used Co(NH3)6Cl3(I) to provide protection against shearing, because it offers fewer problems with aggregation of the **DNA**. Use of a wide-bore pipet tip also helps avoid **shear** degrdn. The optimum I concn. needer for protection was detd. for each of 5 buffer **mixts**. The authors also tested the effects of I on EcoRI restriction enzyme. No inhibition was obsd. at 0,1,2,4, or 6 mM in EcoRI buffer; there was inhibition at 8 and 10 mM. Protection of long **DNA** mols. from yeast and pea indicates that I is generally useful for preserving large **DNAs** in soln.

L5 ANSWER 15 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 6
AN 1996:122358 BIOSIS
DN PREV199698694493
TI Relationship of restriction fragment length polymorphisms (RFLP) at the bovine calpastatin locus to calpastatin activity and meat tenderness.
AU Lonergan, S. M.; Ernst, C. W.; Bishop, M. D.; Calkins, C. R.; Koohmaraie, M. (1)
CS (1) Roman L. Hruska U.S. Meat Anim. Res. Cent., ARS, USDA, Clay Center, P.O. Box 166, NE 68933-0166 USA
SO Journal of Animal Science, (1995) Vol. 73, No. 12, pp. 3608-3612. ISSN: 0021-8812.
DT Article
LA English
AB Restriction fragment length polymorphisms (RFLP) have been identified at the bovine calpastatin locus. The objective of the present study was to determine whether these polymorphisms are related to variations in calpastatin activity or beef tenderness in unrelated animals of **mixed** breeding. A sample of 83 crossbred steers from sires representing eight different breeds was examined to determine this relationship. A 2.2-kb cDNA coding for domains 2 through 4 plus a 3' untranslated region of bovine skeletal muscle calpastatin was used as a probe for calpastatin RFLP. Polymorphisms were found using the restriction enzymes BamHI and EcoRI. Polymorphic restriction fragments for BamHI were 9.0 and 5.0 kb and for EcoRI were 6.0 and 4.0 kb. Allelic frequencies for BamHI restriction fragments were .53 for the 9.0-kb allele and .47 for the 5.0-kb allele. Allelic frequencies for EcoRI restriction fragments were .43 for the 6.0-kb allele and .57 for the 4.0-kb allele. No polymorphisms were identified using the restriction enzymes Bg/II, Dr-alpha-I, or PstI. No associations between EcoRI and BamHI RFLP and 24-h calpastatin activity or Warner-Bratzler **shear** force at 14 d postmortem were detected. Therefore, the polymorphic EcoRI and BamHI restriction sites within the bovine calpastatin locus do not detect **DNA** sequence differences responsible for variation in calpastatin activity or tenderness of aged beef. Therefore, these polymorphisms cannot be used to predict tenderness of aged beef from unrelated animals of **mixed** breeding. These results do not exclude the possibility that other **DNA** sequences in or near the bovine calpastatin gene are responsible for variation in calpastatin activity or meat tenderness. The lack of a relationship between these calpastatin RFLP and meat tenderness must be distinguished from the well-documented relationship between calpastatin activity and meat tenderness. Therefore, further development of calpastatin-based methods for predicting beef tenderness in unrelated animals of **mixed** breeding should focus on basic factors influencing calpastatin activity at the molecular and cellular level.

L5 ANSWER 16 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1996:225073 CAPLUS
DN 124:301228
TI Applications of near field optical microscopy: fluorescence in situ hybridization, Langmuir-Blodgett films and integrated optical waveguides.
AU Van Hulst, Niek; Moers, Marco; Borgonjen, Erik
CS Faculty Applied Physics, University Twente, Enschede, 7500AE, Neth.
SO NATO ASI Ser., Ser. E (1995), 300(Photons and Local Probes), 165-80 CODEN: NAESDI; ISSN: 0168-132X
DT Journal
LA English
AB Scanning Near-field Optical Microscopy (SNOM), based on metal coated adiabatically tapered fibers, combined with **shear** force feedback and operated in illumination mode, proved to be the most powerful SNOM arrangement, because of its true localization of the optical interaction, its true optical contrast (fluorescence, polarization, etc.) and its sensitivity down to the single mol. level. The authors present the 1st application of SNOM to (i) Fluorescence In Situ Hybridization (FISH) of human metaphase chromosomes, where the localized fluorescence allows to identify specific **DNA** sequences in addn. to the topog. force image, and (ii) Langmuir-Blodgett mono-layers, where the orientation of the polymer backbone and the degree of polymn. is visualized in the near-field polarized fluorescence simultaneously with the topog. in the force signal. Photon Scanning Tunnelling Microscopy (PSTM), based on

frustration of total internal reflection with uncoated dielec. probes and operated in transmission mode, is exptl. easier than aperture SNOM, but less straightforward in its interpretation as generally near field and far field scattering are obsd. **mixed** with topog. effects. The authors have applied combined PSTM/AFM to (i) Langmuir-Blodgett mono-layers, and (ii) integrated optical ridge waveguides. Both systems have virtually no surface structure. In the waveguides purely the elec. field distribution is probed by coupling to the evanescent wave. Direct observation by PSTM of TM and TE modal field distributions, mode beating and application to a Y-junction wavelength (de)multiplexer is presented.

L5 ANSWER 17 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1993:529233 BIOSIS
DN PREV199396142640
TI Agitation, aeration and perfusion modules for cell culture bioreactors.
AU Fenge, Christel (1); Klein, Cornelia; Heuer, Carsten; Siegel, Ursula; Fraune, Elisabeth
CS (1) Kabi Pharmacia, Strandbergsgatan 49, S-1, 1287 Stockholm Sweden
SO Cytotechnology, (1993) Vol. 11, No. 3, pp. 233-244.
ISSN: 0920-9069.
DT Article
LA English
AB For an optimized bioreactor design which is adapted to the cultivation of sensitive animal cells different modular bioreactor components for gentle agitation, sufficient aeration and long-term perfusion were developed and investigated with respect to their suitability from laboratory to production scale. Aeration systems have been designed for both **shear** sensitive cells and cells which tolerate bubbles. The systems are based on either membranes for bubble-free aeration or stainless steel sparger systems. They were characterized by determination of their oxygen transfer capacity and optimized in cultivation processes of different cell lines under process conditions such as batch and perfusion mode. Different impellers for suspension cells and cells grown on carriers were investigated for their suitability to ensure homogeneous gentle **mixing**. A large pitch blade impeller as well as a novel 3-blade segment impeller are appropriate for homogeneous **mixing** at low **shear** rates. Especially with the 3-blade segment impeller fluid mechanical stress can be reduced at a given stirrer speed which is advantageous for the cultivation of cells attached to microcarriers or extremely **shear** sensitive suspension cells. However, our results indicate that **shear** sensitivity of animal cells has been generally overestimated. Continuous perfusion of both suspension cell cultures and cells cultivated on microcarriers could be successfully performed over extended periods of time using stainless steel spinfilters with appropriate pore sizes and systems based on microporous hydrophilic membranes. Spinfilters are suitable cell retention systems for technical scale bioreactors allowing continuous perfusion cultures of suspension cells (pore size 10 to 20 mu-m) as well as anchorage dependent cells grown on microcarriers (pore size 75 mu-m) over six weeks to 3 months. Applying the developed modules for agitation, aeration and perfusion process adapted bioreactor set-ups can be realized which ensure optimum growth and product formation conditions in order to maximize cell and product yields.

L5 ANSWER 18 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1993:347238 BIOSIS
DN PREV199396044238
TI Simulating bacterial clustering around phytoplankton cells in a turbulent ocean.
AU Bowen, James D. (1); Stolzenbach, Keith D.; Chisholm, Sallie W.
CS (1) ENSR Consulting Engineering, 35 Nagog Park, Acton, MA 01720
SO Limnology and Oceanography, (1993) Vol. 38, No. 1, pp. 36-51.
ISSN: 0024-3590.
DT Article
LA English
AB The hypothesis that bacteria can cluster around phytoplankton cells in the turbulent **mixed** layer was tested with a model that simulates bacterial chemotaxis toward a neutrally buoyant phytoplankton cell exuding dissolved organic C. The model results indicate that bacteria can attain population densities orders of magnitude above background levels in

microzones occupying lt 0.1% of the fluid volume surrounding each phytoplankton cell. Th[redacted]imulation results indicate tha[redacted]t turbulence intensities expected in the upper **mixed** layer of the ocean (**shear** rates of apprx 0.15 s-11) bacteria initially approach phytoplankton through random swimming and relative fluid motions. Chemotactic response serves to prolong a bacteria's stay near the phytoplankter before it is carried away by random swimming and fluid motions. At these **shear** rates, up to 20% of the chemotactic bacteria population could be clustered around exuding phytoplankton cells, even though individual bacteria stay in a cluster less than a minute. For these conditions the time-averaged exudate exposure of the bacteria population could be 10 times higher than that of a nonchemotactic population. Exudate exposures in steady shearing were found to equal or exceed the corresponding steady **shear** values. Although unsteady bursts of turbulent **mixing** in the oceanic surface layer should disperse clusters, intervening calm periods are long enough to allow clusters to reform. The model indicates that bacteria clustering is unlikely to have a significant effect on phytoplankton nutrient uptake or on the fate of bacterial secondary production in the microbial food web.

L5 ANSWER 19 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1992:649894 CAPLUS
DN 117:249894
TI Pneumococcal polysaccharide conjugate vaccine
IN Kniskern, Peter J.; Ip, Charlotte C.; Hagopian, Arpi; Hennessey, John P., Jr.; Miller, William J.; Kubek, Dennis J.; Burke, Pamela D.; Marburg, Stephen; Tolman, Richard L.
PA Merck and Co., Inc., USA
SO Eur. Pat. Appl., 50 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 497525	A2	19920805	EP 1992-300655	19920127
	EP 497525	A3	19930310		
	EP 497525	B1	19980819		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, PT, SE				
	IL 100716	A1	19991222	IL 1992-100716	19920121
	IL 119961	A1	20000131	IL 1992-119961	19920121
	CZ 283284	B6	19980218	CZ 1992-199	19920123
	SK 280659	B6	20000516	SK 1992-199	19920123
	AU 9210467	A1	19920730	AU 1992-10467	19920124
	AU 651656	B2	19940728		
	FI 9200353	A	19920729	FI 1992-353	19920127
	NO 9200350	A	19920729	NO 1992-350	19920127
	CN 1064217	A	19920909	CN 1992-100700	19920127
	ZA 9200536	A	19920930	ZA 1992-536	19920127
	HU 69968	A2	19950928	HU 1992-252	19920127
	AT 169825	E	19980915	AT 1992-300655	19920127
	ES 2121820	T3	19981216	ES 1992-300655	19920127
	JP 05065300	A2	19930319	JP 1992-12941	19920128
	JP 07094472	B4	19951011		
	US 5623057	A	19970422	US 1994-246394	19940520
	LV 12309	B	19991120	LV 1999-69	19990426
PRAI	US 1991-646570	19910128			
	US 1991-807942	19911219			
	IL 1992-100716	19920121			

AB A conjugate vaccine is provided which comprises partially hydrolyzed, highly purified capsular polysaccharide from Streptococcus pneumoniae linked to an immunogenic carrier protein. The conjugate is useful in the prevention of pneumococcal infections. Vaccines comprising a **mixt** . of 1-10 different conjugates induce broadly protective recipient immune responses against the cognate pathogens from which the polysaccharide components are derived. Young children and infants <2 yr old, normally unable to mount a protective immune response to the pneumococcal polysaccharide alone, exhibit protective immune responses on vaccination with the conjugates of the invention. Thus, a S. pneumoniae 6B

polysaccharide prepn. was obtained by partial hydrolysis and isopropanol fractionation; a conjugate of the polysaccharide obtained with Neisseria meningitidis outer membrane protein complex (OMPC) was prepd. The conjugate elicited good T-cell stimulation in mouse studies. The conjugate also elicited significant elevations in antibodies to the polysaccharide when tested in 2-5-yr-old children. Cloning and expression of **DNA** for Neisseria meningitidis major immunoenhancing protein (OMPC subunit) is also described.

L5 ANSWER 20 OF 32 MEDLINE
AN 91176948 MEDLINE
DN 91176948
TI Purification of S1 nuclease from Aspergillus oryzae by recycling isoelectric focusing.
AU Ostrem J A; Van Oosbree T R; Marquez R; Barstow L
CS Protein Technologies Incorporated, Tucson, AZ 85719..
SO ELECTROPHORESIS, (1990 Nov) 11 (11) 953-7.
Journal code: ELE. ISSN: 0173-0835.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199107
AB We describe the purification of a single-strand nuclease from Aspergillus oryzae using the first commercial prototype of an instrument (RF3TM) designed by Milan Bier et al. for preparative-scale isoelectric focusing. Protein separation takes place entirely in solution, with **shear** -stabilized laminar flow counteracting convective disturbances generated by the electric field. Conditions for isoelectric focusing were determined by focusing fractions with nuclease activity, following chromatography on DEAE-Sepharose, in analytical gels containing carrier ampholytes. The separation was then scaled up to process larger quantities of protein in the RF3. When partially-purified protein (250 mg, 6700 U/mg) was focused in pH 3-4 carrier ampholytes. 67% of the activity was recovered in pooled peak fractions with a specific activity of 54,000 U/mg protein. Overall, 82% of the activity loaded on the RF3 was recovered. Eliminating two steps prior to isoelectric focusing, and increasing the protein load from 250 mg to 1.2 g, produced an enzyme with a nearly four-fold increase in specific activity (from 4000 U/mg protein to 15,000 U/mg protein) but with unacceptable color. Our results indicate that a high quality enzyme can be prepared in quantity when heat denaturation and ammonium sulfate precipitation are included prior to isoelectric focusing.

=> d l5 bib ab 21-32

L5 ANSWER 21 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1991:158675 BIOSIS
DN BA91:84475
TI VISCOMETRIC DETECTION OF SINGLE STRAND BREAKS IN **DNA**.
AU KREIL H-D
CS HESSENKLINIK, D-6390 USINGEN.
SO Z ANGEW ZOOL, (1990) 77 (2), 177-204.
CODEN: ZANZA9. ISSN: 0044-2291.
FS BA; OLD
LA German
AB A simple method for the measurement of viscosities correlated to **DNA** alterations in alkaline L5178 Y cell lysates is described. For the measurements a specially adapted viscometer of the capillary type allows to reduce **shear** stress by using long and wide capillary tubes. By digesting **DNA** with DNAse I it has been shown that more than 90% of the viscosity of cell lysates is contributed by **DNA**. A strong viscosity decrease by sonication and mechanical alteration signifies **DNA** breakage. After incubation of L5178 Y cell suspensions with Benzo(a)pyrene viscosity measurements give clear dose responses. A 50% viscosity decrease compared to controls is reached by incubation with 3 .cntdot. 10-6 mol B(a)P/l. The specificity of the viscosity response has been shown in the comparison of Benzo(a)pyrene with

it's isomer Benzo(e)py[redacted]e, known to be only weakly carc[redacted]ogen. The concentration response [redacted] 4-Nitroquinoline N-oxide is g[redacted]n. A 50% effect is reached of 10-8 mol 4-NQO/l. This simple method possibly allows for fast and reliable short-term tests with high sensitivity. It can be used for prescreening of potential carcinogenic or mutagenic chemical agents, including **mixtures**. This method therefore can contribute to environmental prophylaxis.

L5 ANSWER 22 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 7
AN 1988:177756 BIOSIS
DN BA85:89858
TI HIGHLY PROTECTIVE ALKALINIZATION BY AMMONIA VAPOR DIFFUSION IN VISCOSIMETRIC **DNA** DAMAGE ASSESSMENT.
AU ZAHN R K; ZAHN-DAIMLER G; BEYER R
CS COMMISSION MOLECULAR BIOLOGY, ACADEMY SCI. AND LITERATURE, D-6500 MAINZ, WEST GERMANY.
SO ANAL BIOCHEM, (1988) 168 (2), 387-397.
CODEN: ANBCA2. ISSN: 0003-2697.
FS BA; OLD
LA English
AB A method for the measurement of viscosities correlated to **DNA** alterations in alkaline homogenate suspensions is described. The alkaline pH shift to afford cell lysis, **DNA** unfolding, and denaturation is attained by gaseous ammonia diffusion, thus avoiding **shear** stress from mechanical **mixing**. At the same time a stabilizing density gradient is established. This solution is run through a plastic measuring tube that is wide enough to minimize the influence of uneven swelling of the lysing **DNA**-containing components. Flow times under a carefully controlled water head are registered, and their ratios to control solutions are evaluated. The relative viscosities show a strong and irreversible dependence on **shear** and on DNase treatment and therefore are considered as essentially **DNA** derived. The time dependence of the lysate viscosities with and without the **DNA** -damaging agent bleomycin is given and the dose activity curves of this agent with sponge homogenates from two orders of Porifera are given with their 50% effective concentration values. The dose:activity curve of an extract from a polluted marine point source is demonstrated. The concentration changes in sponges exposed at differently polluted marine sites are shown. The idea of alkalinization through gaseous diffusion in conjunction with a simple measuring device has already proven a sensitive, reliable, and specific tool in the assessment of **DNA** damage produced under both laboratory and field conditions.

L5 ANSWER 23 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 8
AN 1988:331002 BIOSIS
DN BA86:37553
TI INTERSTRAND CROSSLINKS DUE TO 4 5' 8 TRIMETHYLPSORALEN AND NEAR UV LIGHT IN SPECIFIC SEQUENCES OF ANIMAL **DNA** EFFECT OF CONSTITUTIVE CHROMATIN STRUCTURE AND OF INDUCED TRANSCRIPTION.
AU ROSS P M; YU H-S
CS ROCKEFELLER UNIVERSITY, 1230 YORK AVENUE, NEW YORK, N.Y. 10021.
SO J MOL BIOL, (1988) 201 (2), 339-352.
CODEN: JMOBAK. ISSN: 0022-2836.
FS BA; OLD
LA English
AB We have used low-level photocrosslinkage to study chromatin effects on psoralen intercalation at specific **DNA** sequences of various complexities in intact, cultured, Drosophila cells. Alkali-denatured **DNA** connected in both strands to a 4,5',8-trimethylpsoralen (TMP) interstrand crosslink is insensitive to digestion by the single strand-specific nuclease S1 and does not hybridize to complementary **DNA**. Crosslink number at any ultraviolet light exposure increases in proportion to the concentration [PS] of TMP dark binding sites that are occupied. The crosslinking constant, K, is the increase in crosslink number per length **DNA** per increment [PS]. Many factors influence K, including sequence composition and ionic strength. We show here that the ratio of K at any specific sequence (Kh, from hybridization measurements) to Kh at any other specific sequence or to K of total **DNA** (Kf, from fluorimetry measurements) can be calculated from

measurements of crosslinkage, the mass fraction of the sequence in question or of total DNA that is connected in both strands to a crosslink. When crosslinked and uncrosslinked **DNAs** fragmented by mechanical **shear** were **mixed** in known proportions, Kf exceeded Kh of a single-copy gene by 15%. We treated cells with TMP plus near ultraviolet light, then tested for crosslinkage and for hybridization. A single-copy, larval gene at 70D, and a 250-copy type 1 ribosomal **DNA** intervening sequence, neither of which is transcribed in these cells, were as sensitive to crosslinkage as total, cell **DNA**. However, single-copy, heat shock gene sequences from loci 63BC and 95D, and the 180-copy ribosomal **DNA** coding sequence were more sensitive to crosslinkage than total **DNA** in the same preparations. The excess was largest in the shortest fragments, indicating a localized effect. The same sequences were crosslinked less readily than total **DNA** in vitro; we calculate a 3.4 to 3.8-fold excess crosslink number in these sequences due to chromatin microenvironment. We tested for effect of transcriptional induction on crosslink sensitivity in the heat shock genes. At low [TMP], heat shock stimulated crosslinkage at very near heat shock genes in cells, but not in other sequences or in naked **DNA**. However, overall crosslink sensitivity was unaffected by heat shock. This suggests that transcription increased the affinity of some heat shock gene **DNA** binding sites for TMP without increasing the number of such sites.

L5 ANSWER 24 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1986:89366 CAPLUS
DN 104:89366
TI Molecular weight distribution of water-soluble polymers: a new absolute method
AU Holzwarth, G.; Soni, L.; Schulz, D. N.
CS Corp. Res. Sci. Lab., Exxon Res. and Eng. Co., Annandale, NJ, 08801, USA
SO Macromolecules (1986), 19(2), 422-6
CODEN: MAMOBX; ISSN: 0024-9297
DT Journal
LA English
AB A new abs. mol. wt. distribution (MWD) method for polymers, based on band sedimentation and low-angle laser light scattering (LALLS), is demonstrated. It is esp. useful for water-sol. polymers. Unlike size-exclusion chromatog./LALLS, polymers with mol. wt. > 107 are readily analyzed, no **shear** degrdn. should occur, and adsorption is minimal. Excellent light-scattering data are obtained, even with water, because band sedimentation not only separates the sample according to mass but also clarifies the soln. The resoln. of the method is demonstrated with clean sepns. of **mixts**. of 2 narrow-MWD poly(Na styrenesulfonate) (I) [62744-35-8] samples with wt.-av. mol. wt. (Mw) = 100,000 and 400,000. Another I sample with nominal Mw = 1.2 .times. 106 has 3 distinct peaks with mol. wts. = 1.3, 1.8, and 2.8 .times. 106. The power of the method for mol. wts. > 107 was further demonstrated by anal. of a broad-MWD poly(Na 3-acrylamido-2-methylpropanesulfonate) [35641-59-9] sample (Mw = 43 .times. 106) and with a monodisperse viral **DNA**(T5) having mol. wt. = 68 .times. 106. The T5 polymer exhibited a very sharp peak with Mw = 66 .times. 106 and no-.av. mol. wt. = 65 .times. 106.

L5 ANSWER 25 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS DUPLICATE 9
AN 1978:183366 BIOSIS
DN BA65:70366
TI FREQUENCY OF REPLICATION FROM ALTERNATIVE ORIGINS IN THE COMPOSITE R PLASMID NR-1.
AU PERLMAN D
CS LAB. MOL. BIOL., UNIV. WIS., MADISON, WIS. 53706, USA.
SO J BACTERIOL, (1978) 133 (2), 729-736.
CODEN: JOBAAY. ISSN: 0021-9193.
FS BA; OLD
LA English
AB The relative frequency of initiation of **DNA** replication within the RTF-Tc [resistance transfer factor carrying tetracycline resistance] and r-determinant components of the composite drug resistance plasmid NR1 in Proteus mirabilis was evaluated. Using fractionated radioactively

labeled plasmid **DNA**, analytical procedures that distinguished between the 2 components of the composite plasmid were carried out. A **mixture** of uniformly 14C-labeled and 3H-pulse-labeled plasmid **DNA** (pulse-labeled origin[s] of replication) was used in each of 3 experiments. **Shear** products of the **DNA** were analyzed using CsCl density gradient centrifugation. Fragmented **DNA** was hybridized to nonradioactive RTF-Tc and r-determinant **DNA** immobilized on nitrocellulose filters. The radioactive plasmid **DNA** was digested with restriction enzyme (EcoRI), producing a set of RTF-Tc and r-determinant fragments with differing 3H/14C isotope ratios. Under the conditions used to accumulate replicating plasmid **DNA** molecules (**DNA** substrate limitation), the r-determinant origin of replication was preferentially utilized in the composite plasmid.

L5 ANSWER 26 OF 32 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1979:172116 BIOSIS
DN BA67:52116
TI ANTI THIXOTROPIC PROPERTIES OF ISO IONIC **DNA** SOLUTIONS.
AU KUZNETSOV I A; POPENKO V F; FILIPPOV S M
CS CHEM. FAC., M.V. LOMONOSOV MOSC. STATE UNIV., MOSCOW, USSR.
SO BIOFIZIKA, (1978) 23 (3), 539-541.
CODEN: BIOFAI. ISSN: 0006-3029.
FS BA; OLD
LA Russian
AB The rate of **shear** dependence of dilute (3 .cntdot. 10-3 g/dl) isoionic solutions of **DNA** was investigated. The solutions were obtained from aqueous Na-**DNA** solutions by **mixed** bed ion exchangers. The increase of .eta. and high sensitivity to **shear** stress was induced by initial **shear** strain with rate (G) 800 s-1 which take place during 40 s. The increase of .eta. with increase of G was also shown. This antithixotropic behavior is explained by high stiffness and polyampholytic nature of **DNA** in dilute isoionic solutions.

L5 ANSWER 27 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1969:491969 CAPLUS
DN 71:91969
TI Low-**shear** titration viscometer suitable for investigation of **DNA** and other polymers
AU Reinert, Karl E.; Geller, K.
CS Deut. Akad. Wiss. Berlin, Jena, Ger.
SO Chem. Instrum. (1969), 1(4), 391-5
CODEN: CHINBH
DT Journal
LA English
AB A sep. **mixing** chamber is attached to an otherwise conventional Zimm-Crothers rotating-cylinder viscometer to give a low-**shear** titrn. viscometer suitable for investigating the effects of interacting substances on polymer viscosity. A small **mixing** chamber was connected with the viscometer stator, and **mixing** was carried out by repeatedly pressing the soln. into the stator by means of a pressure generator, consisting of an adjustable ring-shaped siphon vessel placed in the same temp.-controlled bath that controls the viscometer temp. Absence of turbulence sources in the properly dimensioned device prevented **shear** degradation of the polymer solns. The app. also had provisions for detg. soln. pH and for **mixing** by impinging a small gas stream onto the soln. in the **mixing** chamber. Use of the app. was demonstrated by plotting the relative viscosity of a calf thymus **DNA** prepn. as a function of Na+ concn.

L5 ANSWER 28 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1970:18456 CAPLUS
DN 72:18456
TI Newly synthesized ribosomal ribonucleic acid of Escherichia coli
AU Fry, Michael; Artman, Michael
CS Hadassah Med. Sch., Hebrew Univ., Jerusalem, Israel
SO Biochem. J. (1969), 115(2), 295-305
CODEN: BIJOAK
DT Journal

LA English
AB RNA synthesized by Esc ichia coli during one-hundredt f the generation time contains 2 fractions distinguishable by hybridization with homologous **DNA**. One fraction, approx. 30% of the newly synthesized RNA, did not compete with ribosomal RNA (rRNA), being apparently messenger RNA (mRNA). The other fraction, approx. 70% of the newly made RNA, hybridized as rRNA. These values are comparable with previous estimates (McCarthy and Bolton, 1964; Pigott and Midgley, 1968). Hybridization-competition expts. showed that the newly made RNA assocd. with 70S ribosomes and larger ribosome aggregates was a **mixt**. of rRNA and mRNA, whereas that assocd. with nascent ribosomal subunits consisted exclusively of rRNA. This observation provides means by which newly synthesized rRNA can be isolated free from mRNA. Newly made rRNA in nascent ribosomal subunits was sensitive to **shear** under conditions where rRNA in mature ribosomes was **shear**-resistant. Thus, when RNA was extd. from cells of E. coli disrupted by mech. means, newly made rRNA appeared heterogeneous in size, sedimenting as a broad peak extending from 8S to 16S. Newly synthesized rRNA in nascent ribosomal subunits was rapidly degraded in the presence of actinomycin D and during glucose starvation. Newly synthesized rRNA stimulated amino acid incorporration in a system synthesizing protein in vitro to the same extent as the RNA which contained the mRNA fraction.

L5 ANSWER 29 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1968:93634 CAPLUS
DN 68:93634
TI Evidence for long **DNA** strands in the replicating pool after T4 infection
AU Frankel, Fred R.
CS Sch. of Med., Univ. of Pennsylvania, Philadelphia, Pa., USA
SO Proc. Natl. Acad. Sci. U. S. A. (1968), 59(1), 131-8
CODEN: PNASA6
DT Journal
LA English
AB Comparison of 32P-labeled precursor **DNA** of parental phage origin and 3H-labeled marker **DNA** showed a rapid sedimentation of parental label for samples taken 14 min. after infection. Sedimentation in alk. sucrose was performed with 3H-labeled newly synthesized **DNA**, with 3H-labeled **DNA** synthesized in the presence of chloramphenicol, and to show the effect of **shear** on single strands of precursor **DNA**. Specific hybridization tests of **mixts**. contg. precursor **DNA** and reference **DNA** were made. Part of the replicating **DNA** evidently sedimented in alkali at a rate appropriate to single strands of 2 or more times the normal length of T4 **DNA**.

L5 ANSWER 30 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1967:513759 CAPLUS
DN 67:113759
TI Isolation of half molecules of **DNA** from gram-negative bacteria
AU Pitout, M. J.; Mare, Ignatius J.
CS Univ. Pretoria, Pretoria, S. Africa
SO Nature (London) (1967), 215(5106), 1185-6
CODEN: NATUAS
DT Journal
LA English
AB Salmonella typhimurium, Proteus mirabilis, Alcaligenes faecalis, Pseudomonas aeruginosa, Escherichia coli, and Shigella flexneri were grown overnight in nutrient broth at 37.degree.. The cells (10 g.) were suspended in 50 ml. of 0.1M Tris-0.015M NaCl buffer, pH 9.0, and made 1% with Na dodecyl sulfate. After gentle agitation, 50 ml. of 90% freshly distd. phenol was added at 55.degree., and the **mixt**. shaken at 5 rpm. for 20 min., then centrifuged at 3000 g for 60 min. The upper layer was carefully removed and dialyzed against 0.15M NaCl-0.015M citrate buffer, pH 7.0. After incubation with RNase, the **mixt**. was agitated with activated C for 20 min. at room temp., then centrifuged at 10,000 g for 10 min. Detns. of sedimentation coeffs. of the **DNA** prepns. gave a s.degree.20,w value of 62.5 S. When the **DNAs** for P. mirabilis and E. coli were subjected to increasing **shear**

forces, they were degraded to 45 S, 31 S, and 22 S mols., corresponding to 1/4, 1/8, and 1/16 mol. Evidently, half mols. of **DNA** [redacted]62.5 S and mol. wt. of .apprx.120 million were isolated and the so-called whole or intact **DNA** mols. of bacteria were .apprx.81 S with a mol. wt. of 250 million. In bacteria, the **DNA** must occur in an assembly of subunits of .apprx.250 .times. 106 mol. wt., probably held together by protein.

L5 ANSWER 31 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1968:46360 CAPLUS
DN 68:46360
TI Sedimentation analysis of neutralized alkali-denatured **DNA**
AU Freifelder, David
CS Brandeis Univ., Waltham, Mass., USA
SO Biochem. Biophys. Res. Commun. (1967), 29(6), 856-61
CODEN: BBRCA9
DT Journal
LA English
AB Alkali-denatured **DNA** is sensitive to alk. hydrolysis and to hydrodynamic **shear** degradation. If alkali-denatured **DNA** is neutralized at high ionic strength, a rapidly sedimenting form of **DNA** results which presumably consists of internally H-bonded and hence highly compact single-strand **DNA** mols. To be useful it is necessary that each mol. collapse independently without intermol. aggregation and this may be detd. quant. by measuring the size distribution of a heterogeneous **mixt**. before and after neutralization using several denatured bacteriophage **DNA** and also **DNA** with an increased no. of strand breaks resulting from x-irradn. For each of the **DNA** examd. the sedimentation diagrams for centrifugation of denatured **DNA** in alk. and neutral solns. comprised a main boundary representing intact single strands and slower material consisting of smaller fragments. The percentage of intact mols. was the same under both conditions. Data for denatured **DNA** of phages B3, T7, T4 and .alpha., examd. in alk. soln. or, following alk. denaturation, in HCHO or neutral soln. were summarized. The identity of the percentage of homogeneous material was the same for the various solns. and this suggests that intermol. aggregation does not occur and that neutral sedimentation will yield the same results as alk. sedimentation without the complications of alk. hydrolysis. Since all 3 conditions yield the same result also for irradiated **DNA**, the use of neutralized alk.-denatured **DNA** to examine induced strand breakage is probably justified. There was no sign of intermol. aggregation at higher concns. than 20-40 .mu.g./ml. at the time of neutralization.

L5 ANSWER 32 OF 32 CAPLUS COPYRIGHT 2001 ACS
AN 1968:75857 CAPLUS
DN 68:75857
TI Natural history of viruses as suggested by the structure of their **DNA** molecules
AU Thomas, Charles Allen, Jr.; Ritchie, D. A.; MacHattie, Lorne A.
CS Johns Hopkins Univ., Baltimore, Md., USA
SO Mol. Biol. Viruses, Proc. Symp. (1967), Meeting Date 1966, 9-30
CODEN: 19SSAO
DT Conference
LA English
AB Old and new data are reviewed and interpreted. Structures of various viral **DNA** mols. are considered. These mols. begin and end with the same sequence of nucleotides. Single chains (as from denaturing and annealing T2 **DNA**) may appear as ill-defined bushes in electron microscopy. The P22 **DNA** also cyclizes after denaturation. T2, T4, and P22 are permuted. T3, T7, .lambda., and T5 are nonpermuted collections of duplexes. Repetition at the ends of mols. and length of overlap in T2 are interpreted. In new expts., T3 and T7 **DNA** mols. did not cyclize before degradation with exonuclease III (I) but did so very efficiently after <1% of the nucleotides had been released. Overdigestion with I to remove as much as 6% of the nucleotides of T3 and T7 gave pairs of gaps in the chains and cyclization (shown and described). Mols. of adenovirus **DNA** were also cyclizable but with much lower

efficiency. In other expts., **shear**-broken fragments were **mixed** with intact mols. and the **mixt**. degraded with I, then annealed. The intact T3 and T7 mols. cyclized readily after degradation but the fragments did not. Since it appeared that both permuted and nonpermuted mols. were terminally repetitious, this condition may occur in all **DNA** viruses. The basic forms of viral **DNA** mols. are interpreted. For the different forms of viral **DNA** mols. within cells, all began and ended with the same nucleotide sequence. Thus a viral **DNA** mol. is a "parenthetical genetic sentence, bracketed by repetitions." The theoretical possibility of nonrepetition is discussed. 24 references.

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=> s aspirat? and dna and shear

L6              0 ASPIRAT? AND DNA AND SHEAR

=> d his

     (FILE 'HOME' ENTERED AT 09:13:38 ON 23 MAR 2001)

     FILE 'BIOSIS, CAPLUS, MEDLINE, SCISEARCH' ENTERED AT 09:13:55 ON 23 MAR
     2001
L1              0 S ASPIRAT? AND MIX? AND DNA AND SHEAR
L2              0 S ASPIRAT? AND DNA AND SHEAR
L3              0 S ASPIRAT? AND NUCLEIC AND SHEAR
L4             50 S MIX? AND DNA AND SHEAR
L5             32 DUP REM L4 (18 DUPLICATES REMOVED)
L6              0 S ASPIRAT? AND DNA AND SHEAR
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